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Table of Contents
Aquaculture
Beef
Broiler
Dairy
Egg Layer
Equine
Fur Bearing
Goat
Pork
Sheep
Turkey

Ontario Deer Research and Services Committee

OASCC Index |

Table of Contents

- Executive Summary
- Introduction
- Committee Activities
- State of the Industry
- Emerging Issues
- Report of Action Taken on Previous Year's Recommendations
- Non-Research Recommendations
- Summary of Distribution of Recommendations
- Detailed Recommendations - Research
- 1998 Detailed Recommendations - Non-Research and Development
- Appendix
- Ontario Deer Research and Services Sub-Committee - 1998

EXECUTIVE SUMMARY

The Ontario Deer and Elk Farmers Association represents about one half of all deer producers in Ontario. The recommendations this year have been streamlined and emphasize the barriers to a steady progress for the industry. The Committee met to define specific achievable targets that will make a significant difference(s) to the industry.

The greatest frustration to the industry and other agencies is the one hundred and thirty-five (135) herds which are untested for tuberculosis. The Canadian Food Inspection Agency (CFIA) has the jurisdiction and mandate to test the herds. The industry wants the herds tested but the job isn't getting done due to owner reluctance, lack of handling facilities and CFIA's health and safety concerns for their staff when handling deer.

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| Table of Contents | | Top of Page |

INTRODUCTION

The Sub-Committee saw a significant turnover in its membership due to early retirements. Committee representation is balanced among agricultural government agencies (OMAFRA-2; CFIA-1), industry (ODEFA - 3), University of Guelph (1) and wildlife agencies (2). Industry is represented by all aspects of the deer industry from elk to white tail deer and from meat and venison production to deer urine production.

| Table of Contents | | Top of Page |

COMMITTEE ACTIVITIES

The Committee had a very good priority planning session. There has been some advancement since last year and there is a positive outlook for dealing with some of the issues.

The Chair informed the Sub-Committee that there is reason for cautious optimism, in that OMAFRA's Education, Research and Laboratories anticipates a special research fund for 1998/99. The funds will encompass alternative livestock, as well as alternative crops and non-food applications. OMAFRA is developing a Request for Proposals for the 1998/99 fiscal year, which will be based on the top industry priorities as identified through the OASCC sub-committees (fur-bearing, goat & deer).

The Chair asked the Sub-Committee to keep certain guidelines in mind, when developing research priorities based on direction given from ARIO/OASCC/OMAFRA. The research priorities should:

- be more "strategic" in nature, thus building a strong business case of benefits of research (especially economic) and be medium to long term research;
- benefit or provide competitive advantage to Ontario;
- be research - not literature reviews
- ensure non-duplication of existing research.

It was also stressed that recommendations would likely have a better chance of receiving funding, if the industry reinforced their commitment to the recommendations, by matching or contributing partially towards the proposed research.

| Table of Contents | | Top of Page |

STATE OF THE INDUSTRY

There are about 358 operations which keep captive deer and/or elk in Ontario, according to Canadian Food Inspection Agency (CFIA). Of these, it is estimated that about 200 are commercial deer farms. The Ontario Deer and Elk Farmers Association (ODEFA) represents 100 medium to large deer farms. CFIA estimates there is a total of 17,400 deer in Ontario, which includes farmed deer and those kept on non-farming operations (zoos, animal exhibits, personal collections). OMAFRA estimates that elk account for 30% of the total animals, red deer and elk red deer hybrids 52%, fallow deer 10%, white-tailed deer 7% and other species 1%. These proportions have changed significantly over the last five years to an industry with fewer fallow deer and a greater population of red deer and elk red deer hybrids.

Table 1 shows the number of deer and elk processed in either provincially (20) or federally (2) inspected plants. The federally inspected plants do not differentiate between species. There were an average of 1,600 deer/year processed during the three-year period from 1992 to 1994. During the subsequent three-year period from 1995-1997, an average of 2,120 deer or elk were processed, which represents a 33% increase. The number of fallow deer being processed in provincially inspected plants has decreased by 50% since 1994, thus the majority of the increased deer being processed are red deer.

Table 1 - Number of Deer and Elk Processed in Ontario in Provincially or Federally Inspected Plants

Species	1990	1991	1992	1993	1994	1995	1996	1997	As of Sept 30/98
Fallow Deer - Provincial	55	216	143	429	766	520	503	386	220
Red Deer - Provincial	0	123	58	107	151	147	111	134	99
Elk - Provincial	28	42	5	10	23	23	8	11	18
Deer - Federal	61	463	1,366	1,197	528	1,922	996	1,598	N.A.
Total Deer & Elk	144	844	1,572	1,743	1,468	2,612	1,618	2,129	N.A.

| Table of Contents | | Top of Page |

There is currently a good domestic market for farmed venison, especially from the restaurant sector. Most Ontario producers sell their venison to wholesalers/distributors at prices of $2.50 to $2.75/lb. warm carcass weight, depending on the species. There is generally a premium paid for red deer over fallow deer, because of the difference in carcass size and subsequent efficiencies in processing. Those producers that are committed to marketing their own product to local restaurants, delis, or butchers, or directly to the consumer by farm gates sales, are achieving higher prices, but there is additional time and expense involved in developing these niche markets.

For those producers marketing venison through wholesalers, prices have been slightly lower than in previous years ($3.00 - $3.50/lb.), due primarily to an increased supply of venison from both Ontario and New Zealand. New Zealand was forced to slaughter significantly larger numbers of red deer and red deer/elk hybrids due to feed shortages resulting from drought. However, the economic crisis of Asia and specifically Korea, played a far more important role in the industry's decision to dramatically

reduce the breeding inventory. The demand for Ontario velvet was very strong until 1997, with good quality, large "sticks" bringing $95 - 100/lb. for elk velvet and $75 - $85/lb. for red deer and hybrid velvet. Most Ontario producers were able to sell their 1997 velvet crop but at substantially reduced prices. As of October 1998, many deer and elk farmers still have much of their 1998 velvet crop in freezers. Those choosing to sell the 1998 crop, reportedly received $30-50/lb. Cash flow difficulties, resulting from weak velvet markets, may dictate whether Ontario red deer, elk and hybrid producers reduce their breeding inventory in the upcoming year. If there is a substantial decrease in herd size, the increased supply of venison may drive venison prices even lower.

Not surprisingly, breeding stock prices have weakened, as the velvet markets became less stable. Table 2 summarizes prices for elk, red deer, hybrids, fallow deer and white-tailed deer as provided by members of the Ontario Deer and Elk Farmers Association (ODEFA). In general, elk, red deer and hybrid prices have decreased 20-40% since 1997. The fallow deer prices are largely unchanged as they are marketed primarily for venison, thus the down turn in the velvet market has not directly affected this segment of the deer farming industry.

The white-tailed deer prices have remained strong, since the breeding stock pool is fairly limited. The white-tailed deer are being raised primarily to provide "trophy" bucks, which are being sold to hunting enclosures in Quebec and the United States. The Ministry of Natural Resource's **proposed** Fish and Wildlife Conservation Act would not permit the hunting of farmed white-tailed deer or elk in Ontario. ODEFA is lobbying for changes to the proposed legislation and regulations to allow for hunting enclosures in Ontario. The Ontario White-Tailed Deer Association claims a four day hunt would generate $2,500 plus the trophy fee. For successful hunts, trophy fees would range from $2,000 for a small mature antlered deer, to $5,000 for a 150" B&C* buck, to $8,000 for a 170" B&C trophy buck. The white-tailed sector is also collecting urine during the rut season, to be marketed in 1999 to the hunting trade, as a scented lure.

| Table of Contents | | Top of Page |

Table 2 - 1998 Deer and Elk Prices as Reported by members of Ontario Deer and Elk Farmers Association

Species	Mature Males	Bred Mature Females	Yearlings	Calves/Fawns
Elk	$20 - 25,000/bull	$12 - 15,000/cow		
Elk/Red Hybrids	$1,500/stag	$1,500 - $2,000/hind		
Red Deer	$1,000 - $1,200/stag	$800 - $1,000/hind		
White Tailed Deer	$7,000/average buck $10 - $15,000/ 170" B&C Score* buck	$5,000 - $6,500/doe		$3,000 - $4,500/female $1,500 - $2,500/male
Fallow Deer	$400 - $600/buck	$350/doe	$200/buck $150/doe	$100

* - B&C Score = Boone & Crocket Score measures the size of the deer's antler

| Table of Contents | | Top of Page |

EMERGING ISSUES

1) A continuous concern of the industry, OMAFRA and wildlife agencies is the unknown status for tuberculosis of 135 non-commercial facilities. These herds are an unknown risk to the deer and overall livestock industry and reflect badly on the commercial deer industry.
2) Sales of all deer species to western Canada are being prevented due to the inability to identify inapparent carriers of the parasites P. tenuis and E. cervi. Research is under way to develop tests to identify carrier animals at two research centres.
3) There is an increased concern regarding the spongiform encephalopathy, Chronic Wasting Disease (C.W.D.). This disease has been identified in wild deer in the USA and has been diagnosed on a farm in western Canada. CFIA is closely monitoring the situation.
4) Bill 139 - Fish and Wildlife Conservation Act

   The Ontario Ministry of Natural Resources' (OMNR) proposed Fish and Wildlife Conservation Act, would permit the farming of certain animals, previously considered to be game animals. The Act would allow deer farming by exempting "farmed animals" such as white-tailed deer and elk, from most of the provisions of the Act and regulations. The only aspects of the Act or regulations that would apply to the deer farming industry would be:

   The hunting of farmed white-tailed deer and elk would not be permitted. Hunting of imported species such as red deer and fallow deer would still be permitted.

   Farmers would be responsible for ensuring their deer (all species) and elk did not escape. If the deer or elk escaped or were released, the farmer would be responsible for recovering the animals. If the animals were not recovered within a reasonable period of time, the OMNR would have the authority to capture or kill the animals and the owner would then be responsible for incurred expenses.
5) OMAFRA and OMNR commissioned the study, "The Development of Best Management Practices for Farmed Cervids to Protect Native Wildlife in Ontario"

An inter-ministerial steering committee selected panel was comprised of Frank Miller, Dr. Ian Barker and John Williamson. The panel's report "The Development of Best Management Practices for Farmed Cervids to Protect Native Wildlife in Ontario", or more commonly referred to as the "Miller Report", made the following recommendations:

- establish a system of certification and validation;
- establish a system of animal identification and inventory;
- all operations should have adequate facilities for handling and restraint of the species farmed;
- perimeter fencing should be adequate to contain the species farmed;
- an effective means of reporting and managing escapes should be established; and
- deer farms should conform to C.F.I.A. regulations. This was to address the fact that 45% of the deer herds (including non-farming operations) and 30% of the total deer in Ontario, had a "Restricted Status" under the Captive Ungulate Program. In short, these herds have not been tested for Tuberculosis and Brucellosis. Although there has not been a case of Tuberculosis in Ontario cervids since 1994, these untested herds create potential concern for wildlife, "negative status" deer farms and other livestock.

As a result of the report:

- The 1998 Research and Service Recommendations were modified to incorporate many of these recommendations.
- ODEFA is working with the Canadian Venison Council to establish a national animal registry;
- ODEFA, OMNR, OMAFRA and C.F.I.A. are establishing an "Escape and Recovery Protocol" for farmed deer and elk; and
- ODEFA, OMNR, OMAFRA AND C.F.I.A. are attempting to develop a means to encourage untested herds to be tested for Tuberculosis under the Captive Ungulate Program.

| Table of Contents | | Top of Page |

REPORT OF ACTION TAKEN ON PREVIOUS YEAR'S RECOMMENDATIONS

RECOMMENDATION # 1: NUTRITION

DETAILS:

Studies should address:

1) the nutrient requirements of the various species for growth and reproduction with emphasis on the nutrient requirements for increasing the yield of higher priced cuts.
2) the feeding habits of deer. Studies should address how to maintain the winter body condition of does/hinds and regain the condition lost by breeding bucks/stags.
3) pasture seed mixes which extend the growing pasture season and are longer lasting pastures.

RESPONSE:

UNIVERSITY OF GUELPH

The recommendations outlined above are not being addressed in the Animal Research Program in 1998/99. However, with OASCC and OMAFRA direction, we will continue to alert researchers interested in deer farming of the needs to undertake research in the recommendations as outlined.

OMAFRA - EDUCATION, RESEARCH & LABORATORIES DIVISION:

A Request for Proposals (RFP) for alternate livestock is to be developed for the 1998/99 fiscal year utilizing special research funds which became available for 1998. This RFP will be developed by OMAFRA and will be based on the top industry priorities as identified through the OASCC sub-committees.

| Table of Contents | | Top of Page |

RECOMMENDATION: # 2: MARKETING

DETAILS:

1) Producers need assistance in the development of grading standards, product development, packaging, presentation, pricing and marketing of venison and other deer products. Assistance would include testing markets with various products, developing new products and determining the barriers to marketing venison products.
2) Recommendation to OMAFRA and the Food Science and Meat Science Departments of the University of Guelph to develop a partnership project with ODEFA. (A project and application directed to the Rural Job Strategy Fund and focusing on markets, marketing, market research and the defining of quality should be initiated).

RESPONSE:

UNIVERSITY OF GUELPH

The recommendations outlined above are not being addressed in the Animal Research Program in 1998/99. However, with OASCC and OMAFRA direction, we will continue to alert researchers interested in deer farming of the needs to undertake research in the recommendations as outlined.

OMAFRA - EDUCATION, RESEARCH & LABORATORIES DIVISION

A Request for Proposals (RFP) for livestock is to be developed for the 1998/99 fiscal year utilizing special research funds which became available for 1998. This RFP will be developed by OMAFRA and will be based on the top industry priorities as identified through the OASCC sub-committees.

| Table of Contents | | Top of Page |

RECOMMENDATION # 3: REPRODUCTION

DETAILS:

1) Developing a practical and humane technique for transervical artificial insemination (AI) and embryo transfer (ET) in farmed deer.
2) Conduct research into an in vitro fertilization (IVF) program for low cost production of disease-free deer embryos including; oocyte recovery, oocyte maturation, in vitro fertilization, laparoscopic and non-surgical transervical embryo transfer.
3) Develop a computerized record keeping system to improve management of production and health by modifying the existing sheep program developed in Ontario.

RESPONSE:

OMAFRA - EDUCATION, RESEARCH & LABORATORIES DIVISION

A Request for Proposals (RFP) for alternate livestock is to be developed for the 1998/99 fiscal year utilizing special research funds which became available for l998. This RFP will be developed by OMAFRA and will be based on the top industry priorities as identified through the OASCC sub-committees.

UNIVERSITY OF GUELPH

The recommendations concerning deer reproductive technologies and techniques are being indirectly addressed in 1998/99 by the following research projects:

Project #	Leader	Title
13320	Buckrell, B.	Improvements in the application of embryo and semen technologies to improve sheep production.
13340	King, W. A	Towards the in vitro production of viable sheep embryos of known sex.

Complete details regarding the research undertakings listed can be found on the University of Guelph/OMAFRA research website at: www,uoguelph/research/omafra/research_prog.

| Table of Contents | | Top of Page |

NON-RESEARCH RECOMMENDATIONS

RECOMMENDATION #1: STATE OF THE INDUSTRY

DETAILS:

The deer industry needs a positive legislative environment to realize its potential over the next three (3) years.

This will be done by:

1) all levels of government being positive towards the industry. A Livestock Industry Diversification Act should be introduced if a negative government attitude continues to persist.
2) examining the barriers to interprovincial movement of deer to determine the risk of movement of deer from Ontario west in regards to the issue of the parasite P. tenuis.
3) the development of Best Management Practice factsheets to provide deer farmers with leadership in the areas of health and production management, without adverse affects on the environment.

RESPONSE:

UNIVERSITY OF GUELPH

The recommendations outlined above are not being addressed in the Animal Research Program in 1998/99. However, with OASCC and OMAFRA direction, we will again put out a call for this research undertaking in 1999/2000.

OMAFRA

The Ontario government and, specifically, OMAFRA have been involved in a number of initiatives this past year which impact positively on the deer farming industry. These initiatives involved extensive consultation and partnering with Ontario Deer and Elk Farmers Association (ODEFA) and include:

1) **Bill 139**, has recognized elk and white tailed deer as "farmed animals". "Farmed animals" and non-native deer species are exempt from most provisions of Bill 139 except for sections encompassing release and escape from farms. Bill 139 prohibits the hunting of farmed animals.
2) **Development of Best Management Practices for Farmed Cervids to Protect Native Wildlife in Ontario**

   The Ontario government commissioned a panel to consult extensively with the ODEFA and interest groups. A final report with sex (6) recommendations has been submitted to the Ontario government. A monitoring and identification system has been recommended to government.
3) **Risk Assessment for the Importation of Farmed Elk to Saskatchewan from Ontario**

   OMAFRA staff provided extensive support to this study at both the technical design level and the sourcing of scientific references level.

   The project identifies the gaps in scientific knowledge and weaknesses in available tests for use on P. tenuis.

   The risk assessment process is being used to develop the interprovincial trade policy.
4) **Bill 146**

   If Bill 146 - Proposed Farming and Food Production Protection Act, passes third reading, receives Royal Assent and is proclaimed, it will replace the "Farm Practices Protection Act".
   a) Will ensure farming and food production industry in Ontario is protected from restrictive municipal by-laws that constrain normal farm practices.
   b) Deer and elk will be included in the definition of "agricultural operation".
5) **Development of Resource Material**

   Information sheets on Best Management Practices and a Livestock Medicines Course for deer farmers are being developed.

| Table of Contents | | Top of Page |

RECOMMENDATION # 2: ON-FARM DEMONSTRATION

DETAILS:

1) OMAFRA staff will develop a list of topics and a calendar of activities for these topics, in co-operation with ODEFA.
2) The safe handling of medications would be a useful course for deer farmers.
3) Recommendation to OMAFRA, ODEFA and the University of Guelph to initiate co-operative workshops to meet these needs.

RESPONSE:

UNIVERSITY OF GUELPH

Indirect action taken via the following projects in beef:

Project #	Leader	Title
20620	Clark, A.	Beef pasture production
17710	Hamilton, T.	Optimizing the utilization of pasture resources in beef cow calf production
15320	Buchanan Smith, J.	Towards a greater dependence on pasture for raising beef cows and calves

OMAFRA

Work plans of extension staff, for 1998-1999, include the development and delivery of extension materials and workshops on livestock medicines, escape prevention, disease and health management.

| Table of Contents | | Top of Page |

SUMMARY OF DISTRIBUTION OF RECOMMENDATIONS

Recommendation	AAFC	ARIO	UOFG	CARC	OMAFRA	OFAH	OMNR	ODE
1. Research								
1. Disease Surveillance	1	1	1	1	1	1	1	X
2. Marketing	2	2	2	2	2	2	2	X
3. Reproduction	3	3	3	3	3	3		X
4.	4	4	4	4	4	4	4	
2. Non-Research and Development								
3. Tuberculosis	2	2	2	2	2	2	2	2

| Table of Contents | | Top of Page |

DETAILED RECOMMENDATIONS - RESEARCH

RECOMMENDATION #1: DISEASE SURVEILLANCE

DETAILED OBJECTIVES:

1) To encourage research that identifies the inapparent carrier states, and reservoirs of infection, of Johne's, Chronic Wasting Disease, Tuberculosis and the parasites *E. cervi* and *P. tenuis*.

PRIORITY: 1B

2) To encourage research which improves the reliability and specificity of laboratory tests, which have been developed in other livestock species, for the diseases and parasites named above.

PRIORITY: 2B

3) To encourage research which identify(ies) the risks and impact of a disease on the industry and provides strategies for managing or minimizing the risk and the economic impact.

PRIORITY: 2B

BACKGROUND:

The prevalence of tuberculosis in the 135 untested deer herds is unknown. The prevalence of Johne's, CWD and parasites such as E. cervi and P. tenuis are unknown in all deer herds in the province. The unknown health status of herds has significant economic impact from lost trade to western provinces (in the case of E. cervi and P. tenuis) and from the restrictions to movement of animals due to the uncertainty of the tuberculosis status of untested herds. The concern and uncertainty around another spongiform encephalopathy, CWD, can impact significantly on venison sales as they have on beef sales in the U.K.

| Table of Contents | | Top of Page |

RECOMMENDATION # 2: MARKETING AND QUALITY ASSURANCE

The industry has identified the key barriers to marketing "Quality Canadian Venison and Deer Industry Products" as detailed below.

DETAILED OBJECTIVES:

BARRIER # 1 **PRIORITY: 1A**

The inability to identify animals from "hoof to fork" is a major barrier to the industry and, when overcome, forms the basis of a quality assurance program.

BARRIER # 2 **PRIORITY: 2B**

The criteria used to define quality in various products are not specified for the deer species currently farmed.

BARRIER # 3 **PRIORITY: 2B**

Product diversification. Development of products and product recognition are required to create specialty niche markets and add value to existing products.

BACKGROUND:

The inability to track animals from "hoof to fork" is a challenge for all livestock species, including deer. Achieving a practical tracking system will enhance the ability to relate consumer preferences to farm based factors which affect quality. Achieving this objective will also have a positive benefit to wildlife agencies in their desire

to prevent poached game from entering the retail trade. Work currently initiated in other livestock species should be applicable to the deer industry.

Research has been started into the "Qualitative and Quantitative" factors affecting meat in elk but little research is available for Canadian raised red, fallow, or red deer hybrids. There are stressors and pre-treatments which may have positive or negative impacts on carcass quality. Research proposals should include benchmark criteria as well as the affects of various shipment and pre-shipment management procedures e.g. electrolyte therapy.

The primal cuts of carcasses are easily marketed. However, work is required in developing value-added products from venison as well as from the other deer products. Velvet is being combined with ginseng to meet demands from the Asian community. Urine from estrus farmed white tail deer is being commercially collected for sale to hunters. Diversification of product will reduce the effects of the swings in the market created by such events as the Asian market crash.

| Table of Contents | | Top of Page |

RECOMMENDATION # 3: PRIORITY: 2B
REPRODUCTION

DETAILED OBJECTIVES:

1) Develop practical and humane methods for non-invasive artificial insemination and embryo transfer.
2) Develop effective programs for synchronization of estrus - including advancement of the breeding season.
3) Research the capabilities of in vitro embryo production particularly in fallow and white tailed deer using live animal donors and oocytes recovered from eggs at slaughter.

BACKGROUND:

Deer and elk farming is benefiting from the early application of reproductive strategies commonly used in other ruminant species. Genetic improvement programs, management of herds with known health status and marketing of genetic material require effective embryo and semen technologies. Those technologies in use have been essentially adapted from cattle and sheep. However, subtle, but important, differences in physiology and anatomy have been obstacles in their successful adaptation to deer and elk. Even within the cervids there are considerable species/subspecies differences in the effectiveness of standardized techniques. Research is required to tailor-make these technologies to the intended species. Improvements in our understanding of the physiology and temporal events of estrous, programs for estrous synchrony and superovulation and development of non-invasive techniques. Research in semen and embryo technologies, such as next-day chilled semen insemination and improved cryobiology will improve results and reduce costs.

| Table of Contents | | Top of Page |

1998 DETAILED RECOMMENDATIONS - NON-RESEARCH AND DEVELOPMENT

SPECIES - DEER
RECOMMENDATION # 1: TUBERCULOSIS TESTING OF UNTESTED HERDS

PRIORITY: 1B

DETAILED OBJECTIVES:

1) CFIA will identify the untested herds by region. Zoos and animal collections would not be included in this list. Financial and human resources from all agencies will be committed to the project.

BACKGROUND:

The CFIA has the authority for testing livestock for tuberculosis. However, there are 135 known deer herds which are untested. It is paramount to all committee members that these herds are tested. A project will be initiated to use CFIA veterinarians and authority, coupled with ODEFA expertise, and a mobile handling facility to test all untested herds by the year 2000. Committee members will pool financial resources to purchase the necessary equipment and hire a technician to work with C.F.I.A. veterinarians.

| Table of Contents | | Top of Page |

APPENDIX

DUTIES AND TERMS OF REFERENCE OF THE DEER RESEARCH AND SERVICES SUB-COMMITTEE

1) To review deer and elk related research and services being carried out in Ontario and other jurisdictions.
2) To assess the relevance of the current research and services and to determine if they should be continued, expanded or discontinued.
3) To identify potential new areas of research and services.
4) To recommend in order of priority, which existing or new areas of research or services, should be supported.
5) To assemble a state of the deer farming industry report.
6) To identify emerging issues facing the deer farming industry.
7) To submit reports and make presentations to the Ontario Animal Research and Services Committee, encompassing the sub-committee's recommendations and findings.
8) To invite researchers in Ontario to information meetings where progress in deer related research and services can be presented.
9) To ensure liaison and communication among agencies or groups which have a primary interest in the Ontario deer farming industry.
10) To function through a sub-committee chairperson, appointed by the Ontario Animal Research and Services Committee. The appointment of the chairperson will be for two years. The chairperson will not succeed him/herself, but may serve an additional two year period.

| Table of Contents | | Top of Page |

ONTARIO DEER RESEARCH AND SERVICES SUB-COMMITTEE - 1998

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Mr. John Kerkvliet	Director, Ontario Deer & Elk Farmers Association Fawn Meadows, R. R. # 1 St. Thomas, Ontario N5P 3S5 Phone: (519) 633-1125 Fax: (519) 633-0216 Email: fmeadows@netcom.ca	ODEFA	2003
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| Table of Contents | | Top of Page |

| Education, Research & Laboratories Home Page |

| Central Site | Feedback | Search | Site Map | Français |
| Home | What's New | Calendar | Products | News Releases |

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